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	Filing Date	March 29, 2002
	First Named Inventor	Aart Zeger van Halteren et al.
	Art Unit	2644
	Examiner Name	Huyen D. Le
Total Number of Pages in This Submission	Attorney Docket Number	47161-00031USPX

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application No. : 09/980,430 Confirmation No. 3407
Applicants : Aart Zeger van Halteren et al.

Filed : March 29, 2002
Title : COIL CONSTRUCTION FOR AN ELECTROACOUSTIC TRANSDUCER

TC/A.U. : 2644
Examiner : Huyen D. Le

Docket No. : 47161-00031USPX
Customer No. : 30,223

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5/11/2005

Adrienne White

REPLY BRIEF PURSUANT TO 37 C.F.R. §§ 1.193

Dear Sir:

This Reply Brief is filed pursuant to the Applicants' appeal to the Board of Patent Appeals and Interferences ("Board") from the final rejection of claims 8-11 and 27-36 in an Office Action dated September 2, 2004. A Notice of Appeal was mailed on September 27, 2004, and was received by the USPTO on October 1, 2004. Applicants filed an Appeal Brief on December 1, 2004, and the Examiner's Answer was filed on March 11, 2005. The due date for this Reply Brief is two months from the date of the Examiner's Answer, *i.e.*, by May 11, 2005, and this paper is being submitted by this due date.

In accordance with 37 C.F.R. § 1.192(a), this brief is being submitted in triplicate.

I. ARGUMENTS REPLYING TO EXAMINER'S ANSWER

A. Claim Rejection – 35 U.S.C. § 112

Applicants acknowledge that the amendment to Claim 28 was not entered by the Examiner. Applicants request entry of the amendment filed in Applicants' Amendment and Reply to Final Office Action, which was mailed on July 19, 2004. In accordance with 37 C.F.R. § 1.192(c)(4), the status of the amendment to claim 28 is not entered (currently amended). The amendment for which entry is sought for claim 28 is submitted herewith in a separate paper entitled "Listing of Claims." Claim 28 was dependent on withdrawn claim 12, and has been amended to depend from claim 27. In accordance with 37 C.F.R. § 1.116, Applicants state that this amendment was not presented earlier because claim 28 was first rejected in the Final Office Action dated May 19, 2004.

B. Claim Rejections – 35 U.S.C. § 102

1. The Alleged "Electric Circuit Board" Identified By The Examiner In Sone Is Simply a Wire Extension of Coil Leads

The primary disagreement hinges on whether Sone teaches an electric circuit board as claimed. The Examiner asserts that Sone teaches "an electric circuit board that comprises a board (4, 40, 42, 44, 48) with electrical terminals or electrically conductive patterns (50, 52, 22, 24) on its surfaces (also see col. 4, lines 31-34 and lines 36-40 and col. 6, lines 65-67)." Examiner's Answer, at 6. Applicants submit that such an arrangement is not an electric circuit board. In short, Applicants maintain their position that the metal base plate 40 (which the Examiner identifies as a circuit board) together with the conductive patterns 50, 52 are simply wire extensions of the coil lead portions 22, 24 of the coil 20. A wire is not an electric circuit board.

An electric circuit board would be understood by one skilled in the art as including electric circuits, such as chips, resistors, and other electric components. Sone essentially discloses a wire that has been flattened into a particular shape. Accepting Examiner's logic that a mere conductor qualifies as an electric circuit board, then it must also be accepted that any mere flattened wire is an electric circuit board, as it is simply a conductor surrounded by insulating material. No one of ordinary skill in the relevant art would consider a wire to be an electric circuit board, and Applicants submit that the structure identified by the Examiner is nothing more than a flattened wire.

The Examiner repeatedly quotes the following passage from Sone as alleged support for mounting circuits on the metal base plate 40. Applicants and the Examiner simply disagree about what the following passage teaches:

The conductive patterns 50 and 52 are formed by a conductor forming methods such as printing or plating conductive paste, and may be used **for** mounting circuits or elements of the electroacoustic transducer for miniaturization and simplification of electronic devices.

Col. 4, lines 36-40 (emphasis added). The Examiner apparently reads this sentence to teach that circuits or transducer elements may be mounted **on** the conductive patterns 50, 52. Applicants submit that this sentence simply means what it says—that the conductive patterns 50, 52 may be used **for** mounting circuits or transducer elements. In fact, the conductive patterns 50, 52 are connected by the lead portions 22, 24 (see FIG. 2), which are in turn connected to the coil 20. Thus, the lead portions 22, 24 constitute the wire ends of the coil 20 that are electrically connected to the conductive patterns 50, 52. This is why Sone repeatedly teaches that the metal plate 40 constitutes a part of a **magnetic**, not an electric circuit. The conductive patterns 50, 52

are simply wire extensions of the lead portions 22, 24. The lead portions 22, 24 and their connections are described in detail at column 4, line 28 to column 5, line 3.

By way of illustration, electric current would be carried through conductive pattern 50 to the lead portion 22 of the coil wire that comprises the coil 20. The electric current would induce a magnetic field as it wends its way through the coil windings to lead portion 24. From the lead portion 24, the electric current would be carried through the conductive pattern 52 “to an external device.” Col. 4, line 34. Nowhere does Sone teach or disclose that electric circuits can be disposed on the metal plate 40, the lead portions 22, 24, or the conductive patterns 50, 52 to form an electric circuit board. Without circuits, the conductors in Sone are simply wires that are part of a magnetic circuit.

Electric circuits are provided on the printed board 62 in Sone, which is dismissed as “just another board.” Examiner’s Answer, at 6. Applicants mentioned the printed board 62 because Sone itself differentiated between a printed board and a magnetic circuit. Sone makes Applicants’ point that Sone did not refer to the metal plate 40 as part of an electric circuit board and specifically recited a printed board as referring to a different structure. If the coil wire extensions 50, 52 together with the metal plate 40 are deemed to constitute an electric circuit board, then a mere wire must also be considered an electric circuit board. Applicants submit that no person of ordinary skill in the relevant art would understand a flattened conductor overlaid an insulated metal plate to be an electric circuit board.

For at least the foregoing reasons and the reasons set forth in Applicants’ Appeal Brief, Applicants submit that claims 8, 10-11, 27, 29-31, and 33-36 are patentable over Sone.

Regarding the dependent claims, Applicants repeat their arguments set forth in their Appeal Brief.

2. Lee's "Vibration Member 3b" Is Not An Electric Circuit Board For The Same Reasons That Sone's Conductive Patterns Do Not Constitute An Electric Circuit Board

The Examiner maintains the rejections of claims 8-9, and 31-32 in view of Lee, U.S. Patent No. 5,861,686. Lee does not teach or disclose the claimed electroacoustic transducer.

Lee was originally filed in South Korea, and is directed to a device for generating vibrations or buzzer sounds in cellular or pagers. To function as a vibrator, a low frequency (about 120 Hz) is applied to the coil of the device to cause a first vibration member 3a to vibrate. To function as a buzzer or ringer, a high frequency (about 2 kHz) is applied to the coil to cause a second vibration member 3b to vibrate. Only two frequencies are applied to the device to cause it to either vibrate or emit a buzzing or ringing noise at one frequency.

When the operational mode of the device is set into a vibration mode, the PCB of the phone outputs a low frequency (about 120 Hz) to the coil 8 of the device, thus causing the first vibration member 3a to be vibrated. In this case, the vibrations of the member 3a are similar to the beating vibrations of fingers and are clearly sensed by a user. Meanwhile, when the operational mode of the device set into a sound mode, the PCB of the phone outputs a high frequency (about 2 kHz) to the coil 8, thus causing the second vibration member 3b to be vibrated with the coil 8. In this case, the second vibration member 3b is quickly vibrated by the high frequency, thus generating prominent vibration sounds or calling sounds.

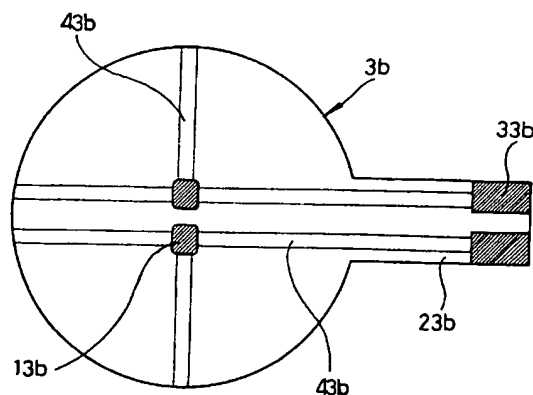
Col. 5, lines 32-45.

Regarding claim 8, the Examiner cites the vibration member 3b shown in FIGS. 1-3 as corresponding to the claimed electric circuit board. Regarding claim 31, the Examiner cites the printed circuit board (PCB), which is not shown anywhere in Lee, as corresponding to the claimed electric circuit board. As an initial matter, no part of the missing PCB is positioned

against the coil in a substantially perpendicular relationship to the coil as claimed in claim 31. The PCB (not shown in Lee) is external to the device shown in FIGS. 1-3. Furthermore, the vibration member 3b does not include signal processing electronics, as called for in claim 31. Note that claim 29, which depends from claim 8, calls for “said electric circuit board includes electronics for signal processing,” and the Examiner did not reject claim 29 in view of Lee. Applicants believe that claim 31 is patentable over Lee for at least the reason that it fails to disclose an electric circuit board including signal processing electronics as claimed.

Returning to claim 8, the Examiner quotes the following sentence from Lee as support for the vibration member 3b being a circuit board: “Therefore, the second vibration member 3b, which is originally used for generating calling sounds, is also used as a circuit board for the coil 8.” Col. 3, lines 50-52. Applicants respectfully submit that this sentence, which was likely translated from Korean into English, is not supported by the description and drawings of Lee. As the Examiner acknowledges, the vibration member 3b does not include any electric circuits. The vibration member 3b is made of a synthetic resin film on which flat copper wires 43b (see FIG. 3 below) and outer terminals 33b are disposed:

Fig 3



“Thereafter, the outer terminals 33b of the lead panel 23b are connected to a PCB (not shown) of a phone.” Col. 3, lines 65-67. In this respect, the flat copper wires 43b are just like the conductive patterns 50, 52 in Sone. A wire is not an electric circuit board, and Applicants submit that no person of ordinary skill in the relevant art would consider a conductive trace on a film to be an electric circuit board. Lee nowhere even suggests that electric circuits can be disposed on the vibration member 3b, the movement of which produces the buzzer sound. Lee repeatedly discloses that the vibration member 3b is connected to an external PCB, and thus functions as a mere wire extension of the coil wires that comprise the coil 8.

The vibration member 3b in Lee is the movable structure that vibrates to generate the buzzing sound. Applicants submit that a person of ordinary skill would not consider the membrane to be an electric circuit board. In Applicants’ disclosure, any movement of the printed circuit board 14 is not involved in the physical production of sound; rather that is the purpose of the diaphragm whose movement is controlled by the movement of the armature. Both Applicants’ disclosure and Lee are consistent that the electric circuits are disposed on a structure separate from the movable membrane.

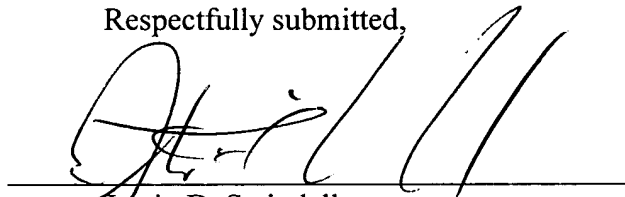
Because the vibration member 3b in Lee is not an electric circuit board, Applicants submit that claims 8-9 and 31-32 are patentable over Lee. Furthermore, because Lee does not disclose disposing any signal processing electronics on the vibration member 3b, Applicants submit that claims 31 and 32 are patentable over Lee for at least this additional reason.

II. CONCLUSION

For at least the foregoing reasons, the final rejection of appealed claims 8-11 and 27-36 set forth in the Final Office Action mailed May 19, 2004, should be reversed.

No fees are believed to be due. However, the Commissioner is authorized to charge any fees inadvertently omitted that may be required (except the issue fee) now or during the pendency of this application to JENKENS & GILCHRIST, P.C. Deposit Account No. 10-0447(47161-00031USPX).

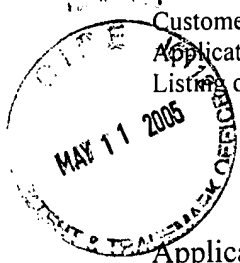
Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Justin D. Swindells', is written over a horizontal line.

Date: May 11, 2005

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Customer No. 30,223
Application No. 09/980,430
Listing of Claims to Reply Brief

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application : 09/980,430 Confirmation : 3407
Number
Applicant : Aart Zeger van Halteren
Number
Filed : March 29, 2002
TC/A.U. : 2643
Examiner : Huyen D. Le
Docket Number : 47161-00031USPX

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of claims.

- 1-7. (Canceled)
8. (Previously Presented) A coil assembly for an electroacoustic transducer, comprising:
a coil having a coil opening defining an axis therethrough; and
an electric circuit board wherein at least a surface portion thereof is positioned against said coil in a substantially perpendicular relationship to said axis.
9. (Previously Presented) The coil assembly of claim 8, wherein said electric circuit board is flexible.
10. (Previously Presented) The coil assembly of claim 8, wherein said electric circuit board is rigid.
11. (Previously Presented) The coil assembly of claim 8, wherein said electric circuit board includes an opening, said opening of said electric circuit board being substantially aligned with said coil opening.
- 12-26. (Canceled)

27. (Previously Presented) The coil assembly of claim 8, wherein said surface portion of said electric circuit board is positioned against said coil by adhesion.

28. (Currently Amended) The coil assembly of claim ~~[[12]]~~ 27, wherein said adhesion is glue.

29. (Previously Presented) The coil assembly of claim 8, wherein said electric circuit board includes electronics for signal processing.

30. (Previously Presented) The coil assembly of claim 8, wherein said electric circuit board is electrically connected to said coil via lead wires.

31. (Previously Presented) A coil assembly for an electroacoustic transducer, comprising:

a coil having a coil opening defining an axis therethrough; and

an electric circuit board wherein at least a surface portion thereof is positioned against said coil in a substantially perpendicular relationship to said axis, said electric circuit board including signal processing electronics.

32. (Previously Presented) The coil assembly of claim 31, wherein said electric circuit board is flexible.

33. (Previously Presented) The coil assembly of claim 31, wherein said electric circuit board is rigid.

34. (Previously Presented) The coil assembly of claim 31, wherein said electric circuit board includes an opening, said opening of said electric circuit board being substantially aligned with said coil opening.

35. (Previously Presented) The coil assembly of claim 31, wherein said surface portion of said electric circuit board is positioned against said coil by adhesion.

36. (Previously Presented) The coil assembly of claim 31, wherein said electric circuit board is electrically connected to said coil via coil lead wires.